

**In The United States Patent and Trademark Office
On Appeal From The Examiner To The Board
of Patent Appeals and Interferences**

In re Application of: Mark T. McCormack et al.
Serial No.: 09/866,092
Filing Date: May 23, 2001
Group Art No.: 2815
Confirmation No.: 5484
Examiner: Eugene Lee
Title: *Structure and Method for Embedding Components
In Multi-Layer Substrates*

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Reply Brief

Appellants respectfully submit this Reply Brief under 37 C.F.R. § 41.41(a)(1) in response to the Examiner's Answer electronically sent June 27, 2008.

Argument

In response to the Examiner's arguments in the Examiner's Answer (specifically the Response to Arguments section), Appellants respond as follows.

First, with respect to Claim 17, the Examiner continues to assert that encapsulating material 112 is the claimed substrate and that such encapsulating material includes a cavity. The Examiner's Answer claims that this is "bluntly and undeniably shown in Fig. 2j of *Ma*," but does not address Appellants' arguments in the Appeal Brief explaining why this is not the case. Again, *Ma* discloses an IC chip that is mounted on a flexible wiring interconnect, referred to in the patent as a "flex component." The chip is then encapsulated with encapsulating material 112, and additional wiring layers may be added onto the flex component. *Ma* does not show a cavity formed in a substrate in which a prefabricated component is mounted. On the contrary, in *Ma*, a component is surrounded, after having already been connected to a flex component, with an encapsulating material. There is and never was any cavity included in the encapsulant 112. The encapsulant is simply formed over the IC chip. The claims require a circuit board substrate having a cavity formed in the substrate. This is simply not disclosed.

Furthermore, with respect to Claim 17, Appellants submit that the Examiner's Answer still has not provided a sufficient basis for combining the teachings of *Ma* with those of *Wojnarowski*. It merely repeats the arguments in the Final Office Action without addressing Appellants' arguments. There is no disclosure or suggestion in *Ma* that the encapsulating material 112 serves to support the die and thus there is no suggestion to modify *Ma* such that the encapsulation material should be modified "in order to support a die," as argued in the Examiner's Answer. Additionally, the Examiner's Answer appears to assert that molding material 24 of *Wojnarowski* is also a substrate having a cavity, but this material is similar to encapsulating material 112 and does not have the claimed cavity for the same reasons discussed with respect to encapsulating material 112.

With respect to Claim 18, Appellants submit that the Examiner has still not shown a teaching, suggestion, or motivation to combine *Miura* with the other cited references in the

manner suggested. Appellants respectfully submit that there is no suggestion or motivation to provide “external connections” to the die 106 of *Ma* through the disclosed encapsulation material 112. As previously noted, that would be against the teachings of *Ma* that material 112 *encapsulates* the die (at least on the side on which it is applied). The Examiner’s Answer does not address this point, which Appellants believe is fatal to the argument that it would have been obvious to make the proposed combination since the primary reference in fact teaches away from the proposed modification.

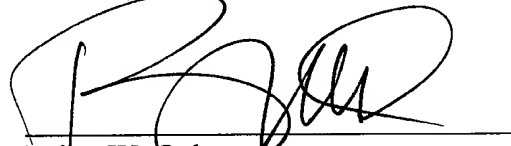
For at least these reasons and the reasons provided in the Appeal Brief, Appellants respectfully request allowance of all pending claims.

Conclusion

Appellants respectfully request the Board of Patent Appeals and Interferences to reverse the Examiner's final rejection of the pending claims and instruct the Examiner to issue a notice of allowance of all pending claims.

The Commissioner is hereby authorized to charge any fee and credit any overpayment to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

Respectfully submitted,
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Date: August 14, 2008

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